Odonatologica 42(3): 211-228 *September 1, 2013*

DESCRIPTION DATE OF *SOMATOCHLORA EXUBERATA* BARTENEV, *LEUCORRHINIA INTERMEDIA* BARTENEV AND *SYMPETRUM VULGATUM GRANDIS* BARTENEV, THE FATE OF A.N. BARTENEV'S TYPE SPECIMENS AND DESIGNATION OF THE LECTOTYPE OF *L. INTERMEDIA* (ANISOPTERA: CORDULIIDAE, LIBELLULIDAE)

A.F. MEDVEDEV[1], O.E. KOSTERIN[2,3,*], E.I. MALIKOVA[4] and W. SCHNEIDER[5]

[1] Department of Hydrobiology, Faculty of Biology, Moscow State University, Leninskie Gory 1-12, Moscow, 119991, Russia

[2] Institute of Cytology and Genetics, SB RAS, Lavrentiev ave 10, Novosibirsk, 630090, Russia

[3] Novosibirsk National Research University, Pirogova str. 2, Novosibirsk, 630090, Russia

[4] Blagoveshchensk State Pedagogical University, Lenina str. 104, Blagoveshchensk, 675000, Amur province, Russia

[5] Forschungsinstitut und Naturmuseum Senckenberg, Senckenberganlage 25, D-60325 Frankfurt/Main, Germany

Received January 9, 2013 / Revised and Accepted April 23, 2013

Descriptions of *Somatochlora exuberata* Bartenev, *Leucorrhinia intermedia* Bartenev and *Sympetrum vulgatum grandis* Bartenev were published simultaneously but 4 times in 2 languages and in 3 years, 1910, 1911 and 1912. One of the 1910 publications was fragmented and published in 4 subsequent journal issues, involving confusion with the order of parts and the paper title, but it is this publication which has priority. The date of publication of the above mentioned names is Oct. 1, 1910. Hence *Somatochlora exuberata* Bartenev, 1910 has priority over *Somatochlora japonica* Matsumura, 1911. Syntypes in Bartenev's own collections were most probably lost, as were most of his types, but some may remain in European collections as received by foreign odonatologists from Bartenev in exchange. A ♂ syntype of *L. intermedia* from Ris' collection, kept in Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main, Germany (FMS), is designated as the lectotype of this taxon.

*** Corresponding author:** kosterin@bionet.nsc.ru

INTRODUCTION

In odonatological literature, both Bartenev's names, *Somatochlora exuberata* and *Leucorrhinia intermedia*, have been dated variously to 1910, 1911 or 1912. (We should note here that this author transliterated his Russian surname to the Latin alphabet as either "Bartenef" or "Bartenev" or both, e. g. in BARTENEF (1915; 1919); in this text we adopt "Bartenev" as consistent with the standard British spelling but retain the other spelling in references when so printed). For instance, BELYSHEV et al. (1989) dated both names to 1911, HARITONOV et al. (2007) dated both names to 1910, BRIDGES (1993) and STEINMANN (1997) dated both names to 1912, DAVIES & TOBIN (1985: 66, 92) dated *exuberata* to 1910 and *intermedia* to 1912 while TSUDA (2000: 144 and 160), on the contrary, dates *exuberata* to 1912 and *intermedia* to 1910. These example references are important to worldwide and regional checklists and so are alone enough to inspire a special investigation of the correct date(s) of the descriptions of these taxa, as this is important with respect to priority. So far, there have been two publications concerning this problem. In a short abstract, MALIKOVA (2006: 33) communicated the following: "The date of Bartenev's work in *Raboty Laboratorii Zoologicheskogo Kabineta Warshavskogo Universiteta*, 1910 (6/7) was somewhat enigmatic, because Bartenev himself referred to this work as published in 1910, while most modern catalogues give the date of publication as 1912. I found the journal in the Library of the Zoological Institute, and there is no day or month of the issue indicated, but the year is 1911. Under the text of Bartenev's work there is a note: "*accepted February 27, 1910*", but the other included in the issue are marked with April, 1911." Later KOSTERIN & ZAIKA (2010: 309) repeated and extended this information as follows: "Both names are commonly referred to Bartenev (1912a) – a German translation of a paper previously published in Russian. As MALIKOVA (2006) pointed out, Bartenev himself used to assign his original descriptions to 1910, which was partly adopted by other authors. The Russian journal with the original descriptions is very rare but MALIKOVA (2006) reported on her discovery of a copy held in the library of the Zoological Institute in St Petersburg. She found out that 1911 is indicated on the cover of the relevant issue. Bartenev's paper was accepted on 27 February 1910 but some other papers were accepted only in April 1911. This fact confirms that the issue was not published before 1911. Hence, the correct names are *Somatochlora exuberata* Bartenev, 1911 and *Leucorrhinia intermedia* Bartenev, 1911."

However, a special search for all relevant Bartenev's publications showed that the above information was incorrect in three respects: (i) the mentioned 'Russian journal' was not the edition where the descriptions were published for the first time, (ii) the indication "1910 (6/7)" in MALIKOVA (2006) was in error and (iii) the dates indicated under the papers in the mentioned journal were not specified as dates of acceptance but lacked a printed explanation.

Our detailed investigation of the problem revealed that the correct description year of both taxa (as well as of a neglected invalid but available name *Sympetrum vulgatum* var. *grandis* Bartenev) is 1910 (October 1) as is substantiated below. In view of a permanent international demand for information concerning Bartenev's type specimens, we made further efforts to locate the type specimens of these taxa, resulting in just one pair of syntypes of *Leucorrhinia intermedia*, from which the male has been designated as the lectotype. The fate of other Bartenev's type specimens is briefly considered as well.

METHODS

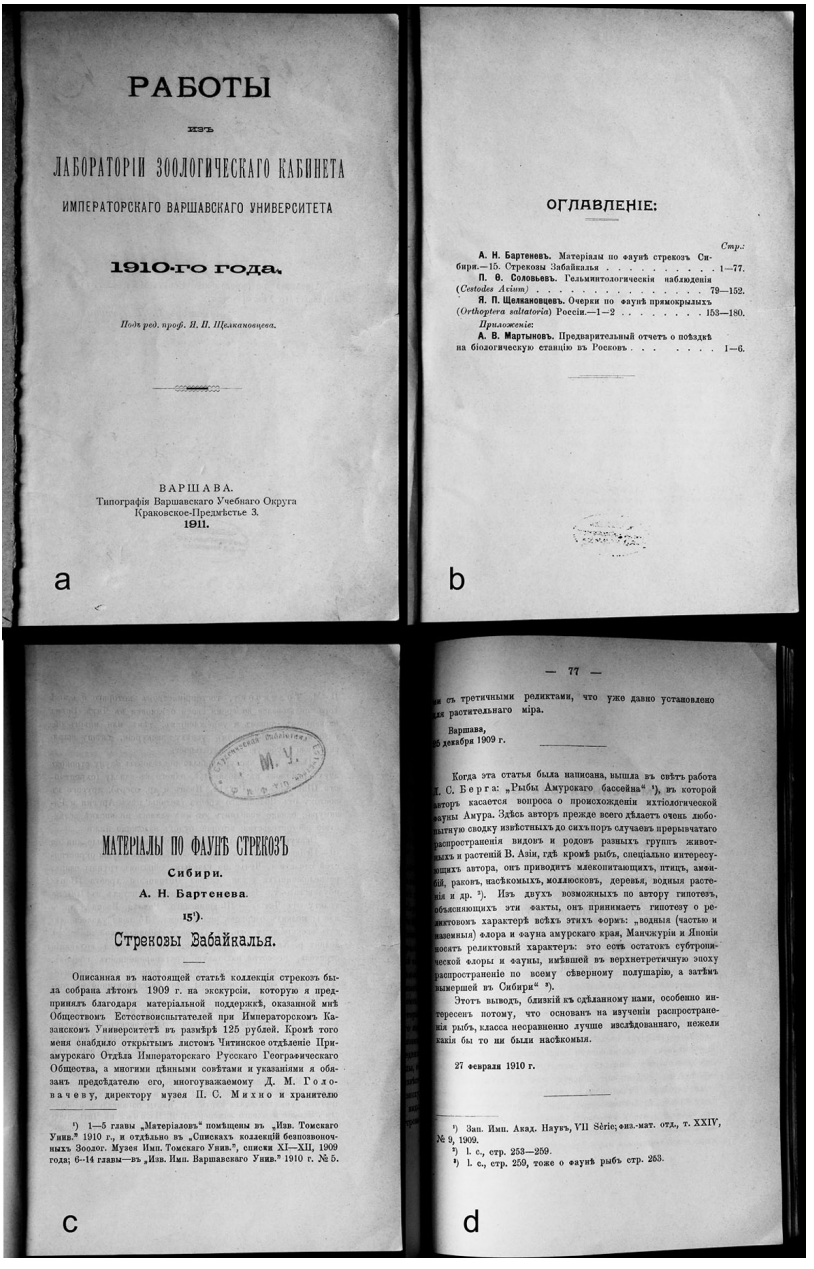
Old literature was examined by A.M. at the Fundamental Scientific Library of the Moscow State University (further in the text F.S.L.M.S.U.), in the Library Department at the Faculty of Biology of the same University (L.D.F.B.M.S.U.) and by E.M. in the Library of Zoological Institute of Russian Academy of Science, St. Petersburg (further L.Z.I.). The relevant pages were photographed. Also very helpful was the resource "Internet Archive" (http://www.archive.org). The Odonata collection of Zoological Institute of Russian Academy of Science, St. Petersburg (ZIN) was investigated by E.M. in 2005 and A.M. in 2011; that of the Zoological Museum of Moscow State University (ZMUM) and the Entomology Department of the same University by A.M. in 2010.

RESULTS AND DISCUSSION

PUBLICATIONS CONTAINING DESCRIPTIONS OF *SOMATOCHLORA EXUBERATA* BARTENEV, *LEUCORRHINIA INTERMEDIA* BARTENEV AND *SYMPETRUM VULGATUM* VAR. *GRANDIS* BARTENEV

As was correctly pointed out earlier (MALIKOVA, 2006; KOSTERIN & ZAIKA, 2010), dating of the names in question to 1912 resulted from the publication (BARTENEF, 1912a) in the German language, published on April 4, 1912, in which the descriptions were presented as original, including "*n. sp*" for the two species and "*n. var.*" for the new variation (BARTENEF, 1912a: 230, 234, 236). Nothing in it hinted to a Western reader that they had been already published in Russian before. However, this German paper was just a direct German translation of the corresponding Russian paper, which had neither title nor abstract or resumé in any language other than Russian. The fact that it was a translation was first acknowledged in a bibliopgraphy by SCHMIDT (1933: 24): "Deutsche Übersetzung von 1910e", although the original Russian paper was cited under "1910e" not so completely and correctly (see below).

Russian authors knew of the existence of the Russian paper and used to date both taxa to 1910 or 1911. Since no current Russian odonatologists seem to have this paper in hand, the reference to it was mostly copied from one source to another without reading the original. It varied as to the title of the edition and otherwise. For instance, the reference to "(Bartenev, 1911)" in KOSTERIN & ZAI-



a

РАБОТЫ

ИЗЪ

ЛАБОРАТОРІИ ЗООЛОГИЧЕСКАГО КАБИНЕТА

ИМПЕРАТОРСКАГО ВАРШАВСКАГО УНИВЕРСИТЕТА

1910-го года.

Подъ ред. проф. И. П. Щелкановцева.

ВАРШАВА.
Типографія Варшавскаго Учебнаго Округа
Краковское-Предмѣстье 3.
1911.

b

ОГЛАВЛЕНІЕ:

Стр.:

А. Н. Бартеневъ. Матеріалы по фаунѣ стрекозъ Сибири.—15. Стрекозы Забайкалья . . . . . 1—77.

П. Ѳ. Соловьевъ. Гельминтологическія наблюденія (*Cestodes Acium*) . . . . . 79—152.

Я. П. Щелкановцевъ. Очерки по фаунѣ прямокрылыхъ (*Orthoptera salitatoria*) Россіи.—1—2 . . . . . 153—180.

Приложеніе:

А. В. Мартыновъ. Предварительный отчетъ о поѣздѣ на біологическую станцію въ Росковъ . . . . . 1—6.

c

МАТЕРІАЛЫ ПО ФАУНѢ СТРЕКОЗЪ

Сибири.

А. Н. Бартенева.

15[1]).

Стрекозы Забайкалья.

Описанная въ настоящей статьѣ коллекція стрекозъ была собрана лѣтомъ 1909 г. на экскурсіи, которую я предпринялъ благодаря матеріальной поддержкѣ, оказанной мнѣ Обществомъ Естествоиспытателей при Императорскомъ Казанскомъ Университетѣ въ размѣрѣ 125 рублей. Кромѣ того меня снабдило открытымъ листомъ Читинское отдѣленіе Приамурскаго Отдѣла Императорскаго Русскаго Географическаго Общества, а многими цѣнными совѣтами и указаніями я обязанъ предсѣдателю его, многоуважаемому Д. М. Головачеву, директору музея П. С. Михно и хранителю

[1]) 1—5 главы „Матеріаловъ" помѣщены въ „Изв. Томскаго Унив." 1910 г., и отдѣльно въ „Спискахъ коллекцій безпозвоночныхъ Зоолог. Музея Имп. Томскаго Унив.", списки XI—XII, 1909 года; 6-14 главы—въ „Изв. Имп. Варшавскаго Унив." 1910 г. № 5.

d

— 77 —

...ми съ третичными реликтами, что уже давно установлено ...ля растительнаго міра.

Варшава,
...5 декабря 1909 г.

Когда эта статья была написана, вышла въ свѣтъ работа Л. С. Берга: „Рыбы Амурскаго бассейна" [1]), въ которой авторъ касается вопроса о происхожденіи ихтіологической фауны Амура. Здѣсь авторъ прежде всего дѣлаетъ очень любопытную сводку извѣстныхъ до сихъ поръ случаевъ прерывчатаго распространенія видовъ и родовъ разныхъ группъ животныхъ и растеній В. Азіи, гдѣ кромѣ рыбъ, спеціально интересующихъ автора, онъ приводитъ млекопитающихъ, птицъ, амфибій, раковъ, насѣкомыхъ, моллюсковъ, деревья, водныя растенія и др. [2]). Изъ двухъ возможныхъ по автору гипотезъ, объясняющихъ эти факты, онъ принимаетъ гипотезу о реликтовомъ характерѣ всѣхъ этихъ формъ: „водныя (частью и наземныя) флора и фауна амурскаго края, Манчжуріи и Японіи носятъ реликтовый характеръ: это есть остатокъ субтропической флоры и фауны, имѣвшей въ верхнетретичную эпоху распространеніе по всему сѣверному полушарію, а затѣмъ вымершей въ Сибири" [3]).

Этотъ выводъ, близкій къ сдѣланному нами, особенно интересенъ потому, что основанъ на изученіи распространенія рыбъ, класса несравненно лучше изслѣдованнаго, нежели какія бы то ни были насѣкомыя.

27 февраля 1910 г.

[1]) Зап. Имп. Акад. Наукъ, VII Série; физ.-мат. отд., т. XXIV, № 9, 1909.
[2]) l. c., стр. 253—259.
[3]) l. c., стр. 259, тоже о фаунѣ рыбъ стр. 263.

Fig. 1. Pages from a copy of *Raboty iz laboratorii zoologicheskogo Kabineta imperatorskago varshavskago Universiteta 1910 goda* from the Library Department at the Faculty of Biology, Moscow State University: (a) cover; − (b) contents; − (c) the first page; − (d) the last page of BARTENEV, 1911.

KA (2010) omitted "1910 goda" from the edition title but erroneously included the issue number "6/7", and the range of pages was indicated as "1-78" instead of "1-77"; this incorrect form of the reference was adopted from recent Russian literature (where the corrigenda page seems to have been counted, see below). The same concerns the reference to "(Bartenev, 1911)" in KOSTERIN et al. (2004) where, in addition, the communication number "15" turned into "1-5".

However, we found out that variation as to the edition title did not result from accumulating errors, since the same Russian paper was published thrice in three different editions, although with identical printed pages. They are enumerated below, under independent references in this paper.

(1) BARTENEV, 1911. The edition entitled (transliteration) "*Raboty iz Laboratorii zoologicheskago Kabineta imperatorskago varshavskago Universiteta* 1910 goda, pod redaktsiey Prof. Ya.P. Shchelkanovtseva" ["Works from Laboratory of Zoological Cabinet of Emperor Warsaw University of 1910, under editorship by Prof. Ya.P. Shchelkanovtsev"] (Fig. 1). In the tradition of those times, no publisher, but rather a printing house, was indicated on the cover (Fig. 1a). This edition was part of a periodical, since there are "*Raboty*..." of other years, e.g. 1909 and 1911, but the issues had no numbers. The relevant issue was composed of four papers, at the end of which a place and date were indicated without explanation. Most probably this was the date and place where and when an author finished his manuscript, a tradition that remains today. e.g., in poetry. Bartenev's paper (BARTENEV, 1911) (Fig. 1d) ended with "Varshava, 25 dekabrya 1909 g." [Warsaw, 25 December 1909] which was followed, on the same page, by a short additional text starting with "[When this paper was already written, there appeared a work by L. S. Berg ...].", which ended with "27 fevralya 1910 г." ["27 February 1910"] (Fig. 1c). Among the other three papers in the edition, the oldest date of April 1911 was indicated in the paper by SHCHELKANOVTSEV (1911). The stamp of the Library of the Zoological Museum of imperial Academy of Sciences on this edition contains the date of acceptance as June 3, 1911.

We must note here that, until 1918, Russia used the Julian calendar (the so-called 'old-style'), the dates in which were 13 days earlier than in the Gregorian calendar used in most other countries at that time and throughout the world nowadays. However, the "Kingdom of Poland" and "Grand Principality of Finland", although being constituents of the Russian Empire in those days, used the Gregorian calendar (VITKOVSKIY & LOVYAGIN, 1895). For this reason, the dates printed and stamped in Warsaw were consistent with the current Gregorian calendar, while those printed and stamped in Saint-Petersburg or Moscow, were 13 days earlier than in the Gregorian calendar.

(2) BARTENEV, 1910c. A separate reprint with its own cover showing the printed date of publication as 1910 (Fig. 2). According to the definition in the Glossary of the International Code of Zoological Nomenclature (1999; hereafter, ICZN), this edition, being a separate reprint supplied with its own date

of publication, should be interpreted as a *preprint*. The preprint contained the original descriptions of the three taxa in question, and if no earlier publications were found, according to Art. 21.8 of the ICZN, they would be considered as validly published in that preprint. Taking into account Art. 21.3.2 of the ICZN, mandating acceptance as the publication date the last day of a printed year or month unless there is evidence for an earlier specific date, and the fact that Poland used the Gregorian calendar, for taxonomic purposes the date of its publication should be accepted as December 31, 1910. It is noteworthy that the cover (Fig. 2) indicated that it was a preprint or a paper from two editions simultaneously: the above considered edition *Raboty iz Laboratorii zoologicheskogo Kabineta imperatorskago varshavskago Universiteta 1910 goda* (BARTENEV, 1911) and the journal *Varshavskiya universitetskiya Izvestiya* [Warsaw University Communications], which contained the next publication of the same paper.

(3) BARTENEV, 1910b. The journal *Varshavskiya universitetskiya Izvestiya* (Fig. 3): Bartenev's paper in question was published in parts in four sequential issues, 6-9, with the part published in issue 6 under a wrong title.

In all examined issues of this journal, most papers had their own pagination starting with page 1 but some were published in parts: in Contents the range of pages were separately indicated for each paper, e.g. "str. 1-8", or "str. 95-110",

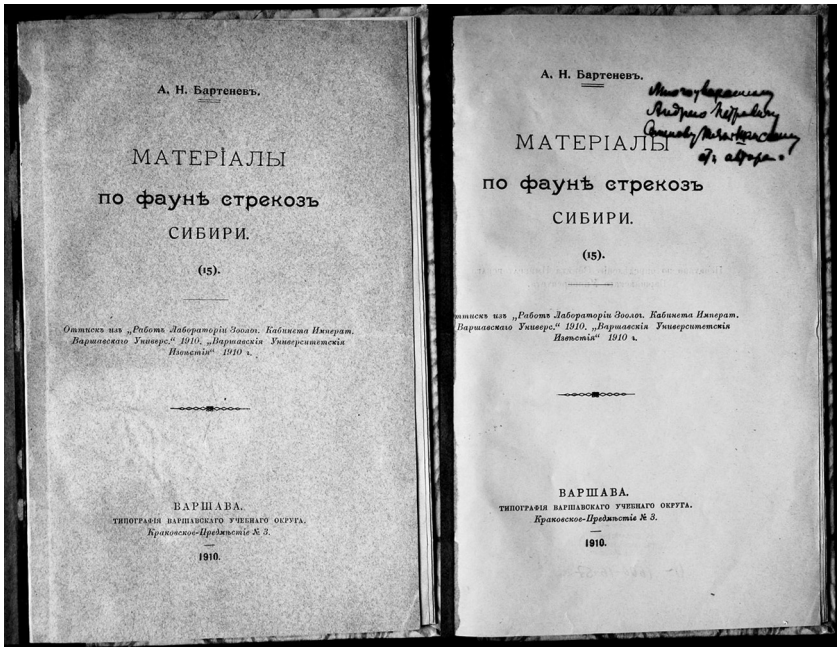


Fig. 2. Cover (left) and title page (right) of a copy of the preprint of Bartenev's 'Transbaikalian' paper in Russian (BARTENEV, 1910c). – [Copy from L.D.F.B.M.S.U.]

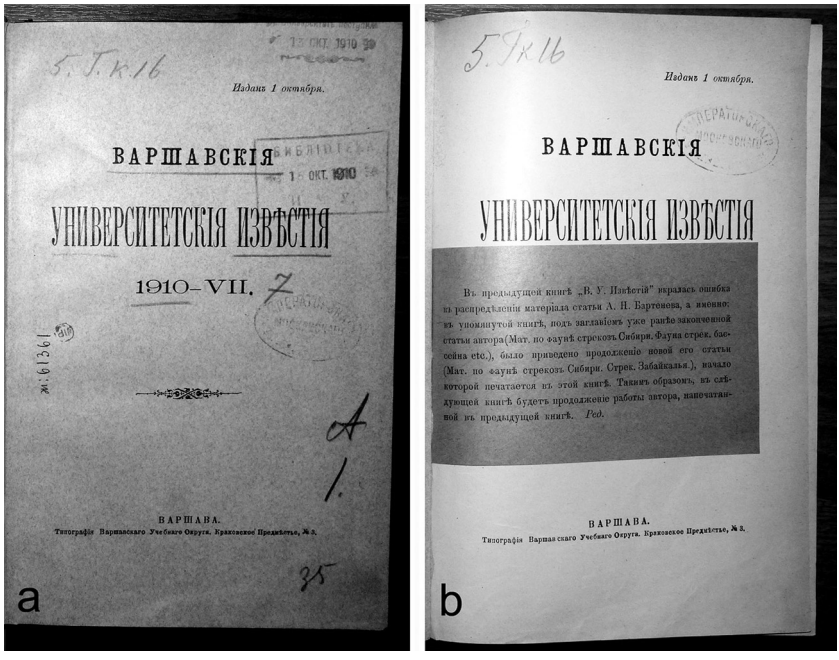


Fig. 3. Issue No. 7 (2010) of the *Varshavskiya univertitetskiya Izvestiya*: (a) cover; – (b) corrigendum to issue No. 6 glued under it. – [Copy from F.S.L.M.S.U.]

"str." being an abbreviation of the Russian word "stranitsy" meaning "pages". The relevant paper by Bartenev was mentioned in Contents for issue 7: "str. 1-24", for issue 8: "str. 41 56" (without a dash), and issue 9: "str. 57 77" (without a dash). Indeed, these issues contain the pages of this paper indicated in their Contents but pages 25-40 were missing.

Issue 7 had a sheet of red paper glued under the cover, over the title page (Fig. 3b), a corrigendum, with the following printed text: "In the previous book of "V[arshavskiya]. U[niversitetskiya]. Izvestiya" an error occurred in the redistribution of the material of the paper by A.N. Bartenev, namely, in the mentioned book, under the title of the already earlier finished paper ([Materials on the fauna of dragonflies of Siberia. Fauna of dragonflies of the basin...]), a continuation of his new paper was given (Materials on the fauna of dragonflies of Siberia. Dragonflies of Transbaikalia), the beginning of which is printed in this book. That is, in the following book there will be a continuation of the author's work printed in the previous one. *Edit[orial]*" (Russian citations are translated by O.K.). Indeed, the Contents of issues 5 and 6 mention the following paper (BARTENEV, 1910a): A.N. BARTENEV. [Materials on the fauna of dragonflies of Siberia. Fauna of dragonflies of the basin of the Tuba river, Minusinsk u[ezd] of Eniseiskaya

gub[ernia] on the data of excursion of 1908 year]; the contents for issue 5 indicate pages "str. 1 24" (without a dash), that for issue 6 indicate "str. 25 40" (without a dash). Issue 5 contained the above-mentioned Tuba river paper (BARTENEV, 1910a), while issue 6 contained pages 25-40 of the Transbaikalian paper (BARTENEV, 1910b).

It was quite a puzzle to learn which of the versions of the Russian paper was referenced by SCHMIDT (1933: 23) in his bibliography, as follows:
"[1910]e Матеріалы по фауне стрекозъ Сибири. (15) [1]) [Beiträge zur Libellenfauna Sibiriens.] (15) Работы Лабораторіи Зоолог. Кабинета Императорск. Варшавскаго Университ. (Варшавскія Университетскія Извѣстія. 1910) [Laboratoriums-Arbeiten des Zoologischen Kabinets der Universität Warschau] p. 1-77 + 1 p. Errata [2]) – Cf. 1912e".

Besides, SCHMIDT (1933: 23) supplied this reference with the following footnote: "[2]) Die Arbeiten in Раб. Лаб. Зоол. Каб. Варшавск. Унив. erschienen (sec. FUDAKOWSKI i. l.) mit gleicher Band- und Jahrzahl (und offenbar auch Pagination) auch in Варшавск. Унив. Известия, die mir als solche nicht vorgelegen haben". However, it seems that SCHMIDT did not have both mentioned editions (cited here as BARTENEV, 1911 and BARTENEV, 1910b, respectively), otherwise he would not have made the statement that both papers had the same year of publication and the same volume, which was erroneous since the first mentioned edition was in fact published in 1911 (see above and Fig. 1), while both editions had no special volume numbers other than the publication year. At the same time, the doubted identity of pagination appeared true. We have to conclude that SCHMIDT (1933) referenced the preprint ("BARTENEV, 1911c"), on the cover of which both editions mentioned by Schmidt are indicated, although separated by a comma and without parentheses (Fig. 2).

DATE OF DESCRIPTION OF THE TAXA IN QUESTION

In BARTENEV, 1910b the description of *Leucorrhinia intermedia* is given on pages 13-17, that of *Sympetrum vulgatum* var. *grandis* on pages 19-20. These pages were included in issue 7 of "*Varshavskiya universitetskiya Izvestiya*", 1910. The description of *Somatochlora exuberata* is given in pages 22-29. The description of *S. exuberata* appeared to be fragmented in two pieces in "*Varshavskiya universitetskiya Izvestiya*": its end, pages 25-29, was published in the issue 6, ahead and under an incorrect paper title, while its beginning, pages 22-24, was published in issue 7.

Since, according to Art. 21.3.2 of the ICZN, we have to accept the publication date of the preprint (BARTENEV, 1910c) as December 31, 1910, the journal publication (BARTENEV, 1910b) has priority. Covers of the journal issues have a printed year below the journal title and a printed date of the relevant issue in the upper right corner, e.g. "Izdan 1 oktyabrya" [issued on October 1] (Fig. 3a). For

the relevant issues they are as follows: September 1 for issue 6, October 1 for issue 7, November 1 for issue 8 and December 1 for issue 9. In addition to the printed dates of issue, the cover of each has two stamps saying "v universitet postupilo [date]" [accepted by the Moscow university] and "Biblioteka [date]" [library] (Fig. 3a). For issues 6-9 these two dates are as September 13 and 15, October 13 and 15, November 8 and 7, December 13 and 14, respectively. These dates following the printed issuing dates (note the 13 days difference between the calendars used in Warsaw and Moscow) and hence indirectly confirm them. Taking into account that Poland within the Russian Empire used the Gregorian calendar and assuming that the taxon description is valid once it is completely published, we must accept the date of publication of *Somatochlora exuberata* as October 1, 1910, since the publication of the description was completed in issue 7. The same issue contains the complete descriptions of *Leucorrhinia intermedia* and *Sympetrum vulgatum* var. *grandis*, which hence had the same date.

The Russian descriptions of *Somatochlora exuberata* Bartenev 1910 and *Leucorrhinia intermedia* Bartenev 1910 (BARTENEV, 1910b) in issues 6-7, of "*Varshavskiya universitetskiya Izvestiya*" fit all criteria of availability of these newly proposed species group names (ICZN, Art. 11.9, 12). When introduced, these new species names were followed by "sp.n.". The new variation was indicated as "var.n." (BARTENEV, 1910b). According to Art. 45.6.4 of the ICZN, the name *grandis* Bartenev 1910 is also available as a species group name since it should be considered subspecific, as proposed as a variation before 1961.

Hence, the descriptions of *Somatochlora exuberata* and *Leucorrhinia intermedia* have been printed by Bartenev in two languages and in four different editions, one of which was published as fragmented into 4 parts and with some additional confusion, but it is this publication which has a priority as to the date of publication of these two taxa.

Publication of the same paper thrice (BARTENEV, 1910b, 1910c; BARTENEV, 1911) resulted from redistribution of the identical, once printed matter with different covers. All the Russian editions (BARTENEV, 1910b, 1910c; BARTENEV, 1911) indicated the same printing house: Printing House of Warsaw Educational District, Krakovskoe-Predmestye No. 3. The identity of the printed pages suggests that (at least) Bartenev's Russian paper (BARTENEV, 1910b, 1910c; BARTENEV, 1911) was printed once, with pagination starting from page 1, and then the print run was stitched into six different covers of three different editions: the journal "*Varshavskiya universitetskiya Izvestiya*" issues 6-9 of 1910 (BARTENEV, 1910b) (in this case involving confusion in stitching and referencing in the Contents), the preprint issued in 1910 (BARTENEV, 1910c) and the collected paper edition issued in 1911 (BARTENEV, 1911). This practice of redistribution of printed matter with different covers seems to have been common in those times, see the Introduction to a preprint (BARTENEV, 1909: 1) of two other papers by Bartenev: "Printing of the present paper failed to take place in spring of

this year in Tomsk, where in May they managed to print only the cover and title page for the paper "Lists of collections of invertebrates of Zool. Mus. of Tomsk Univ." and to make figures. Thus, as a consequence of my relocation to Warsaw, I had to postpone printing of the paper for more than half a year and, with permission of the Council of Tomsk University, to print it already in Warsaw".

THE FATE OF BARTENEV'S TYPE SPECIMENS

Leucorrhinia intermedia Bartenev, 1910 was described from males and females collected at eight localities (BARTENEV, 1910b, 1910c: 13), all of which are presently located in Zabaikaliskiy Kray province, formerly Chita province: Chita, behind the Ingoda river, 9-VI-1909; Chernovskaya, 10-VI-1909; Shaksha, 12-VI-1909; Sokhondo, 13-VI-1909; V[erkhniy]. Alenuy, 19-VI-1909; between V. Alenuy and Ust'-Alenuy, 21-VI-1909; Kavykuchi Gazimurskiya, 22/24-VI-1909; Uktycha, 29-VI-1909. The exact number of specimens is not known: for five localities "♂♂ and ♀♀" are indicated, for V. Alenuy only "♂♂", for Chernovskaya "1♂ and 1♀", for Sokhondo "1♂". From this system of listing it follows that there should be not less than 25 specimens in total. In spite of the fact that Bartenev's Russian paper was printed in Warsaw, the collection dates were given in the Julian calendar and should be shifted 13 days ahead to correspond to the current calendar. Also those dates were not corrected in the German translation (BARTENEF, 1912a).

Somatochlora exuberata Bartenev, 1910 was described from four localities, all being among the eight from which *L. intermedia* was described: Chernovskaya, 10-VI-1909; Verkhniy Alenuy, 19-VI-1909; Kavykuchi Gazimurskiya, 22/24-VI-1909; Uktycha, 28/29-VI-1909; "1♂" is reported from Chernovskaya and "♂" from Uktycha (either one male for two days or "♂♂" were implied), and "♂♂ and ♀♀" for the two other localities. In total there should be not less than 10 specimens.

Sympetrum vulgatum var. *grandis* Bartenev, 1910 was described from 3 ♂ and 4 ♀ (this time the exact number of specimens was reported) from lake Dalay-Nor (Inner Mongolia) collected on 9-VIII-1909 by S. Sergeev.

No holotypes or otherwise selected specimen(s) were mentioned; hence all these specimens were syntypes; those of *S. exuberata* and *L. intermedia* collected by Bartenev himself, those of *S. vulgatum* var. *grandis* collected by S. Sergeev.

The entire paper(s) (BARTENEV, 1910b, 1910c, 1911; BARTENEF, 1912a) contain no indication where Bartenev's Transbaikalian specimens were preserved. Indirect information suggests that all or at least some of those specimens were donated by Bartenev to Warsaw University. The above given citation from BARTENEV (1909) suggests that in spring 1909 Bartenev was still at Emperor Tomsk University, then he had to pause printing of the cited paper for half a year due to his relocation to Warsaw. His Transbaikalian trip took place in sum-

mer 1909, that is just in this half year, so he left Emperor Tomsk University either before or soon after it and then joined Emperor Warsaw University. In the introduction of the Transbaikalian paper(s), BARTENEV (1910b, 1910c; 1911: 4) wrote that "the work was done and written in Zoological Cabinet of Imperial Warsaw University, in the laboratory headed by Ya.P. Shchelkanovtsev". Issue 6 of "*Varshavskiya universitetskiya Izvestiya*" contained a "Short report on state and activity of Emperor Warsaw University for 1909-1910 academic year" which included the following text (ANONYMUS, 1910: 40): "The Cabinet keeper, A.N. Bartenev, worked on identification and bringing into order his collection of Odonata (mostly of the Palaearctic region). This collection, including 125 species, among which there are new and many rare ones, was donated by him to the Zoological Cabinet of Warsaw University".

In 1915, Warsaw University was evacuated (and Bartenev relocated) first to Moscow and then to Rostov-na-Donu (HUSAINOVA & BELYSHEV, 1971) and was converted into Don University, later Rostov-na-Donu University. During these events the University lost all its collections. We have in our possession a blank of a circular letter signed by "Head of Zoological Cabinet I. V. U., Professor", recently found in Moscow. Here is our translation of its Russian text: "The Zoological Cabinet of the Emperor Warsaw University, due to the war time circumstances, having lost all its furnishings, collections and library, and being re-established at a new place, in Rostov-na-Donu city, is presently concerned, according to the decision of the University Council, to resume, as soon as possible, lectures and courses in the current academic year; being deprived from any possibility of restoring a scientific library necessary for its activity, the Zoological Cabinet decided to address all Russian scientists-zoologists, including you, Dear Sir, in the hope of their sympathetic attitude to the difficult situation the Cabinet suffers, with a kind request not to refuse a bearable help in restoring its scientific library by sending reprints of possibly all your scientific works, papers, notes, reviews etc. Address for correspondence of any kind: Rostov na Donu, City Apartment House, Zoological Cabinet of Warsaw State University".

Some remnants of the collection of the Warsaw University were deposited in Rostov University until the 2nd World War when its building was destroyed (IVANOV, 1993). There is no doubt that the collection of the Zoological Cabinet of Warsaw University was lost as well. E.M. found remnants of some collections from Rostov University still kept in ZIN (specimens on cotton layers) but they contained much more recent specimens only.

At the same time, Bartenev kept his own collection and either did not donate all his specimens to Warsaw University or perhaps even withdrew them later. In a work devoted to Odonata specimens from the collection of the Zoological Museum of Emperor Academy of Science (presently ZIN), he mentioned Transbaikalian specimens of "*S. vulgatum grandis* Bart." and "*Agrion lanceolatum* Sel." with indication "(sobstv. koll)", that means "own coll.[ection]" (BARTENEV,

1912b: 448). There are indications of Transbaikalian specimens in Bartenev's own collection in some other of his works as well. In his monograph on the genus *Sympetrum* (BARTENEF, 1915; 1919), a list is given of all studied specimens for each species from the Zoological Museum, which do not include those collected by Bartenev in Transbaikalia in 1909. The latter, however, were enumerated in a bibliographical section in references to Bartenev's own works, e. g. for *Sympetrum flaveolum* (BARTENEF, 1915: 68), *S. pedemontanum* (BARTENEF, 1915: 133), *S. scoticum* (BARTENEF, 1915: 226, 234, 237) and *S. vulgatum imitans* (BARTENEF, 1915: 293). At the same time, legends to most figures contain the indication "koll. avtora", that means "author's coll.[ection]". Existence of Bartenev's large private collection was acknowledged in the introduction in BARTENEV & POPOVA (1928: 235): "Here, united materials on dragonflies from diverse places of the USSR are published from the collection of A.N. Bartenev. These collections were received from different persons before the revolution and information on them was at first intended for inclusion into a compendium on dragonflies of the USSR in the edition "*Fauna of Russia*" by the Academy of Science. Since this edition is not brought into order yet, it is useful to publish a part of this material as a separate paper."

It is noteworthy that in ZIN, a list is still kept of Odonata destroyed by Bartenev, which contained numerous specimens given to him on loan for his work on a volume of "*Fauna of Russia*" (BARTENEV, 1919). All were returned by Bartenev to the museum but in a completely destroyed state. Most likely, his private collection had the same sad fate in those years of civil war and desolation.

Bartenev's practice to keep his own private collection, which was lost after or, more probably, before his death in 1946 in Alma-Ata (presently Almaty, Kazakhstan), resulted in nearly all type specimens of numerous taxa proposed by him being lost as well. So far the only Bartenev's type specimen which we managed to locate in Russia is the holotype (the only specimen of the type series) of *Trigomphus anormolobatus* Bartenev, 1912, found in ZIN collection by E.M. in 2005; preserved because it already belonged to this collection when Bartenev examined it. Also, in 2011, A.M. found out that, in ZIN, a collection of Odonata (in paper envelopes) is kept which originated from Bartenev, but contained mostly specimens collected in 1930-40s in Central Asia. In this collection, the envelope was found probably containing the wings remaining from syntypes, largely destroyed by Dermestidae, of *Denticnemis bicolor* Bartenev, 1956 (a junior synonym of *Copera tokyoensis* Asahina, 1948).

At the same time, Bartenev used to exchange specimens with foreign odonatologists and even sent them his syntypes. He wrote that he had sent one female specimen of "*Sympetrum vulgatum grandis* Bart." to Réné Martin (BARTENEV, 1912b: 416); this specimen must be a syntype. This, and maybe other Bartenev's syntypes may be kept in R. Martin's collection in Museum National d'Histoire Naturelle in Paris (MNHN).

In his analysis of De Selys Longchamps' collection, RIS (1911) included additional collections which were specially mentioned; among them he mentioned "*Leucorrhinia intermedia*. (Coll. Ris: 1 ♂, 1 ♀ Tschita (ded. Bartenef, Cotypen)" (RIS, 1911: 712) and later added: "Ich verdanke der Güte von Herrn A. Bartenef, dass ich das eine der typischen Exemplare seines *Leptetrum rubrum* untersuchen konnte." (RIS, 1911: 1098). Presently RIS's collection is kept, under W.S. curatorship, in the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main, Germany (FMS). The two mentioned syntypes of *L. intermedia* are present there in good condition.

Tracing the unfortunate fate of the rest of the type specimens of numerous taxa described by Bartenev, who lived in such troublesome times – both locating still existing ones and, especially, proving the loss of the rest – would be a long, enormous work with very scarce results at most. This is far beyond the scope of this paper.

IMPLICATIONS FOR NOMENCLATURE

There is no taxonomical problem concerning *Sympetrum vulgatum* var. *grandis* Bartenev, 1910: it was synonymised with *Sympetrum vulgatum imitans* Selys, 1886 still by Bartenev himself (BARTENEF, 1915: 293) and this solution is kept until now, so *Sympetrum vulgatum* var. *grandis* Bartenev 1910 is a junior objective synonym of *Diplax imitans* Selys, 1886.

Specification of the correct date of the original description of *Somatochlora exuberata* Bartenev, 1910 exerts consequences as to the valid name of the united species if, following ASAHINA (1938), LOHMANN (1994) and MALIKOVA (2006), *Somatochlora japonica* Matsumura, 1911 is considered as a synonym of *Somatochlora exuberata* Bartenev, 1910. Recently KARUBE et al. (2012) came to this solution, namely the species *S. exuberata* with subspecies *S. e. exuberata* and *S. e. japonica*, based on the analysis of both morphological characters and the mitochondrial ITS1, ITS2, 16s rRNA and nuclear COI sequences. They correctly accepted for the species the valid name *Somatochlora exuberata* Bartenev, 1910, although assumed the preprint (BARTENEV, 1910c) for the earliest published original description.

The species status of *Leucorrhinia intermedia* Bartenev, 1910 used to be doubted by BELYSHEV (1964; 1966) and KOSTERIN (2004; 2005) who once considered it as a subspecies of *Leucorrhinia rubicunda* (Linnaeus, 1758) but later the same authors have restored the species status, although without full certainty (BELYSHEV, 1973; KOSTERIN & ZAIKA, 2010). The most conspicuous character distinguishing *L. intermedia* and *L. rubicunda* is the length of the lobes of the female valvula vulvae: long in the former and very short in the latter (BARTENEV, 1910b, 1910c, 1911; BARTENEF, 1912; 1933; KOSTERIN & ZAIKA, 2010). The difference in the shape of the male hamulus is also significant but more subtle (BARTENEV, 1910b, 1910c, 1911; BARTENEF, 1912a; 1933; BELYSHEV,

1973): in *intermedia* the hamuli are more deeply hollowed out than in *rubicunda*, making the anterior hook appear longer and more slender in the former; also the posterior side of the hamulus is angular in *intermedia* but rounded in *rubicunda*. (DUMONT et al., 2005). The problem of the relationship and status of these two taxa should be solved by analysis of the situation in the zone of the junction or overlapping of their geographical ranges which itself is still to be found (KOSTERIN & ZAIKA, 2010). Another problem concerns the subspecies *Leucorrhinia intermedia ijimai* Asahina, 1961, described from Hokkaido, Japan (ASAHINA, 1961). There is a controversy about its male hamulus shape, which was reported to resemble the European/Siberian species *L. rubicunda* (BELYSHEV, 1973: fig. 106b; note the figure captions for a and b are confused, b in fact showing *ijimai* and a showing the "type") but also to resemble the Asian *L. i. intermedia* by (HIROSE & ITOH, 1993: 5, fig. 21). Hence *rubicunda, intermedia* s. str, and *ijimai* may show a complicated pattern of morphological and evolutionary relationships (DUMONT et al., 2005).

DESIGNATION OF THE LECTOTYPE OF *LEUCORRHINIA INTERMEDIA* BARTENEV, 1910

Of Bartenev's three taxa considered in this paper, we managed to locate in FMS a pair of syntypes of *L. intermedia*. The above mentioned systematic

Fig. 4. The lectotype (male) of *Leucorrhinia intermedia* Bartenev, 1910 designated in this paper from a pair of syntypes from Ris' collection kept in Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main, Germany (FMS) and its labels.

problems concerning the relationship of this taxon to *L. rubicunda* and *L. intermedia ijimai* make it highly desirable to have a single name-bearing type of *L. intermedia*, preserved in a European museum and available for examination. Otherwise, the name *Leucorrhinia intermedia* would remain associated with the series of syntypes, of which the number still existing is unknown. There is no information if and where some syntypes beyond the FMS pair are still preserved, what their characters are and if they are homogenous taxonomically. Most probably they are lost, but non-existence cannot be proved for sure. In this situation we find it necessary to designate the lectotype of *Leucorrhinia intermedia* chosen from the FMS pair, which well corresponds to the original description and current notion about this taxon. Besides, lectotype designation fixes the type locality, while the whole syntype series was associated with a mountainous territory of about 500 × 300 km (7° of longitude and 3.5° of latitude).

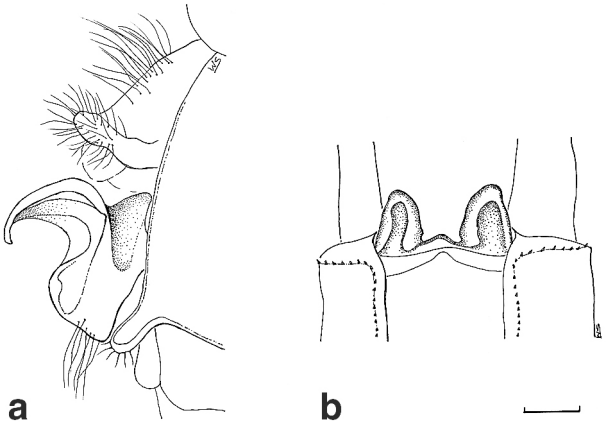


Fig. 5. The genitalia structures of the type specimens of *Leucorrhinia intermedia* Bartenev, 1910 from Ris' collection kept in FMS: (a) the secondary male genitalia structure of the lectotype; – (b) the female genitalia of the paralectotype. – [Scale bar 2 mm]

We had to choose between the male and female syntypes available. Although the most conspicuous character distinguishing *L. intermedia* and *L. rubicunda* is the length of the lobes of the female valvula vulvae, the *rubicunda*-shaped hamulus is the main intrigue over the Japanese taxon *L. intermedia ijimai*. Taking into account these circumstances, we selected the male syntype from "Tschita" (Fig. 4, 5a) from Ris' collection preserved in the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main, Germany (FMS) as the lectotype of *Leucorrhinia intermedia* Bartenev 1910. It bears the red rectangular label "LECTOTYPUS / *Leucorrhinia intermedia* / Bartenev 1910 / des. A.F. Medvedev, O.E. Kosterin, E.I. Malikova & W. Schneider 2012". This very specimen was described in detail by RIS (1911: 1908) so there is no need to repeat its description here, while Figures 4 and 5a show its general appearance and the hamulus shape, respectively. The female is labelled as the paralectotype; its valvula vulvae is shown in Figure 5b.

By this lectotype designation, we fix the type locality of *Leucorrhinia intermedia* Bartenev, 1910 to be Chita ('Tschita' in the German transliteration), a well

known city in Transbaikalia, East Siberia, presently the capitol of the Russian province of Zabaikalskiy Kray.

ACKNOWLEDGEMENTS

The authors are very grateful to MIKE MAY for improving the manuscript and to him and JAN VAN TOL for valuable discussion.

REFERENCES

ANONYMUS, 1910. Kratkoe soobshchenie o sostoyanii i deyatelnosti Inperatorskogo Varshavskogo Universiteta za 1909-1910 akademicheskiy god – [Short report on state and activity of Emperor Warsaw University for 1909-1910 academic year]. *Varsh. univ. Izv.* 6: 63 pp. – [no throughout pagination in the journal; Russ.]

ASAHINA, S., 1938. Odonata of Hokkaido. *Tenthredo* 2: 149-172.

ASAHINA, S., 1961. Odonata, Libellulidae. *Insecta japonica*. (I)1, Hokuryukan Tokyo.

BARTENEV, A.N., 1909 [1910]. Spiski XI-XII [Lists XI-XII]. *In*: N.F. Kashchenko, [Ed.], *Spiski Kollektsiy Bespozvonochnykh Zoologicheskogo Museya Imperatorskago Tomskago Universiteta pod obshchey redaktsiey Professora N.F. Kashchenko. Lists XI-XII (s tablitsami I i II)*, pp. 1-56, 2 tabs. – [a preprint in Russian, with Fr. s.]

BARTENEV, A.N., 1910a. Materialy po faune strekoz Sibiri. 6. Fauna strekoz basseina r. Tuby Minusin. u. Eniseiskoi gub. po dannym ekskursii 1908 g. – [Materials on the fauna of dragonflies of Siberia. 6. Fauna of dragonflies of the basin of the Tuba river, Minu[sinsk] u[ezd] of Eniseiskaya gub[ernia] on the data of excursion of 1908 year]. *Varsh. univ. Izv.* 5: 24 pp. – [no throughout pagination in the journal; Russ.]

BARTENEV, A.N., 1910b. Materialy po faune strekoz Sibiri. 15. Strekozy Zabaykalya – [Materials on the fauna of dragonflies of Siberia. 15. Dragonflies of Transbaikalia]. *Varsh. univ. Izv.*, 6-9, 77 pp., plus a corrigenda page. – [no throughout pagination in the journal; Russ.]

BARTENEV, A.N., 1910c. *Materialy po faune strekoz Sibiri. 15. Strekozy Zabaykalya* [Materials on the fauna of dragonflies of Siberia. 15. Dragonflies of Transbaikalia]. Reprint from "Raboty iz laboratorii zoologicheskogo kabineta Imperatorskago Varshavskago Universiteta 1910 goda", *Varsh. univ. Izv.*, 1910. 77 pp., plus a corrigenda page. – [Russ.]

BARTENEV, A.N., 1911. Materialy po faune strekoz Sibiri. 15. Strekozy Zabaykalya – [Materials on the fauna of dragonflies of Siberia. 15. Dragonflies of Transbaikalia]. *In*: Ya.P. Shchelkanovtsev, [Ed.], "*Raboty iz laboratorii zoologicheskogo kabineta Imperatorskago Varshavskago Universiteta 1910 goda*", Warsaw, 77 pp., plus a corrigenda page. – [Russ.]

BARTENEF, A.N., 1912a. Materialen zur Odonatenfauna Sibiriens. 15. Odonaten aus Transbaikalien. *Zool. Jb.* (Syst.) 32: 221-284.

BARTENEV, A.N., 1912b. Contributions to the knowledge of the Odonata from palearctic Asia in the Zoological Museum of Imp. Academy of Sciences of St. Petersburg, 1. "*Ezhegodnik Zoologicheskogo Muzeya Imperatorskoy Akademii Nauk (za 1911 god)*" 16: 409-448. [Russ., with Engl. title]

BARTENEF (BARTENEV), A.N., 1915. *Insectes pseudoneuroptères (Insecta, Pseudoneuroptera)*. 1(1). Faune de la Russie et des pays limitrophes fondée principalement sur les collections du Musée zoologique de l'Academie des sciences de Russie." Petrograd. pp. 1-352. – [Russ., with Fr. title]

BARTENEF (BARTENEV), A.N., 1919. *Insectes pseudoneuroptères (Insecta, Pseudoneuroptera)*. 1(2). Faune de la Russie et des pays limitrophes fondée principalement sur les collections du Musée zoologique de l'Academie des sciences de Russie." Petrograd. pp. 353-576. – [Russ., with Fr. title]

BARTENEF [BARTENEV], A.N., 1933. Übersicht der Leucorrhinia (Britt., 1850): Arten und Varietäten. *Arch. Naturg.* (N.F.) 2: 1-53.

BARTENEV, A.N. & A.N. POPOVA, 1928. Matériaux pour servir à la faune des odonates de la région paléarctique. *Russ. ent. Obozr.* 22: 235-239. – [Russ., with Fr. title]

BELYSHEV, B.F., 1964. Contributions to the knowledge of fauna of dragonflies (Odonata) of Siberia, 1. *Fragm. faun.* 11: 53-74. – [Russ., with Engl. s.]

BELYSHEV, B.F., 1966. Contributions to the knowledge of fauna of dragonflies (Odonata) of Siberia, 2. Materials concerning the fauna and ecology of dragonflies of the Tunka valley in the southern Baikal region. *Fragm. faun.* 12: 385-411. – [Russ., with Engl. s.]

BELYSHEV, B.F., 1973. *Dragonflies (Odonata) of Siberia*. Vol. 1, part 1. Nauka, Siberian Branch, Novosibirsk. – [Russ., with Engl. title].

BELYSHEV, B.F., A.Yu. HARITONOV, S.N. BORISOV, Z.D. SPURIS, G.A. MAZOKHIN-PORSHNYAKOV, P.A. MOKRUSHOV, R.S. PAVLYUK, L.N. PRITYKINA, G.I. RYAZANOVA, E.S. SHALOPENOK, L.N. PISANENKO, G.A. SUKHACHEVA, I.N. HARITONOVA, V.V. ZAIKA & L.I. FRANTSEVICH, 1989. *Fauna and ecology of dragonflies*. Nauka, Novosibirsk. – [Russ., with Engl. title].

BRIDGES, C.A., 1993. *Catalogue of the family-group, genus-group and species-group names of the Odonata of the world* [2nd edn]. C.A. Bridges, Urbana/IL.

DAVIES, D.A.L. & P. TOBIN, 1985. The dragonflies of the world: a systematic list of the extant species of Odonata. Vol. 2. Anisoptera. *Soc. int. odonatol. rapid Comms* (Supplement) 5.

DUMONT, H., A.Yu. HARITONOV, O.E. KOSTERIN, E.I. MALIKOVA & O.G. POPOVA. 2005. A review of the Odonata of Kamchatka peninsula, Russia. *Odonatologica* 34(2): 131-153.

HARITONOV, A.Y., S.N. BORISOV & O.N. POPOVA, 2007. Odonatological studies in Russia. *Eurasian ent. J.* 6: 143-156. – [Russ., with Engl. title].

HIROSE, Y. & S. ITOH, 1993. *A guide to the dragonflies of Hokkaido*. Self publishing, Abashiri/Shizunai. – [Jap., with Engl. title & s.]

HUSAINOVA, N.Z. & B.F. BELYSHEV. 1971. Pamyati Aleksandra Nikolaevicha Bartereva (1882-1946) [To the memory of Aleksandr Nikolaevich Bartenev (1882-1946)]. *Biol. Nauki* (Kazakh State University, Alma-Ata) 3: 213-225. – [Russ.]

INTERNATIONAL CODE FOR ZOOLOGICAL NOMENCLATURE, [4th edn], 1999. Int. Trust Zool. Nomencl., London.

IVANOV, V.D. 1993. Andrei Vasilievich Martynov: a life story, 9. (22.) 8.1879 – 29.1.1938. *Brauer-ia* 20: 11-13.

KARUBE, H., R. FUTAHASHI, A. SASAMOTO & I. KAWASHIMA. 2012. Taxonomic revision of Japanese odonate species, based on nuclear and mitochondrial gene genealogies and morphological comparison with allied species, 1. *Tombo* 54: 75-106.

KOSTERIN, O.E., 2004. Odonata of the Daurskiy State Nature Reserve area, Transbaikalia, Russia. *Odonatologica* 33: 41-71.

KOSTERIN, O.E., 2005. Western range borders of eastern odonate species in Siberia and their putative origin. *Odonatologica* 34: 219-242.

KOSTERIN, O.E., E.I. MALIKOVA & A.Yu. HARITONOV, 2004. Critical species of Odonata in the Asian part of the former USSR and the Republic of Mongolia. *Int. J. Odonatol.* 7: 341-370.

KOSTERIN, O.E. & V.V. ZAIKA, 2010. Odonata of Tuva, Russia. *Int. J. Odonatol.* 13: 277-328.

LOHMANN, H., 1994. Somatochlora metallica abocanica Belyshev, 1955, a new member of the European dragonfly fauna (Anisoptera: Corduliidae). *Notul. odonotal.* 4: 39-40.

MALIKOVA, E.I., 2006. Synonymy of Somatochlora japonica Matsumura, 1911 and S. exuberata Bartenev, 1911, with the priority of the former. *Abstr. Pap. 17th Int. Symp. Odonatol.,* Hong Kong, p. 33.

RIS, F., 1911. Libellulinen monographisch bearbeitet. *Collns zool. Edm.de Selys Longchamps* 12(4): 385-528, pl. 4 excl.

SCHMIDT, E., 1933. *Bibliographia odonatologica. Ein Verzeichnis der Titel von Schriften über die Libellen der Erde, mit einem Sachregister derselben.* Fritz Wagner, Wien.

SHCHELKANOVSTEV, Ya.P., 1911. Ocherki po faune pryamokrylykh (Orthoptera Saltatoria) Rossii, 1-2 – [Sketches on the fauna of orthopterans (Orthoptera Saltatoria) of Russia, 1-2]. *In*: Ya.P. Shchelkanovstev, [Ed.], *Raboty iz laboratorii zoologicheskogo Kabineta imperatorskago varshavskago Universiteta 1910 goda*, Warsaw, pp. 153-180, plus a corrigenda page. – [Russ.]

STEINMANN, H., 1997. *World catalogue of Odonata*, Vol. 2: *Anisoptera.* [Teirreich 111]. De Gruyter, Berlin – New-York.

TSUDA, S., 2000. *A distributional list of world Odonata*. Tsuda, Osaka.

VITKOVSKIY, V.V., A. Y., A.M. LOVYAGIN & M.V. 1895. Calendar. *In*: K.K. Arsenyev & F.F Petrushevskiy, [Eds], *Brockhaus and Efron encyclopedic dictionary*, Vol. 14, p. 17. Brockhaus & Efron. – [Russ.]